

# CHAPPELL (W.F.)

Observations on the Creosote  
Treatment of Tuberculosis of  
the Upper Air-Passages.

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OBSERVATIONS ON  
THE CREOSOTE TREATMENT OF  
TUBERCULOSIS OF THE UPPER AIR-PASSAGES.

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ABOUT three years ago my attention was specially drawn to the effect of creosote on tuberculous disease of the larynx. Since then I have treated thirty-two persons who had tuberculous deposits in some part of the upper air-tract with creosote internally and locally.

For internal administration, equal parts of beechwood creosote and compound tincture of gentian, thoroughly mixed in hot milk, have been the most satisfactory. This combination produces little or no discomfort, even in large doses. Some of the cases in this report have had the daily dose gradually increased until ninety drops were taken during the twenty-four hours; and in none was the use of creosote discontinued from stomachic or intestinal disturbances.

For local use, pure creosote and its solutions in alcohol were found to be too irritating. Solutions of creosote in castor oil, made after my published formulæ, have continued preferable to all others. These solutions are viscid and tenacious, and therefore especially serviceable for local use.

For administering submucous injections of creosote, nothing equals, in my experience, the automatic syringe and guarded needle already described in my first paper on this subject. To give satisfactory injections with an ordinary syringe, I am convinced, is impossible.

In choosing an automatic syringe for laryngeal work it is not necessary to have a strong, stiff spring. Care should also be taken that the thumb catch, which disengages the piston, works readily, otherwise the advantages of the syringe are not obtained. I also wish to again emphasize that in using the syringe we should be certain that the injection is a submucous one, and that the solution does not well up around the needle.

For local applications of creosote I previously recommended absorbent cotton on a laryngeal applicator as an effective method; but from further experience I have doubted the propriety of this in acute cases, and have resorted to the use of droppers. With a Mizpah dropper and laryngeal mirror solutions may be dropped in exact quantities into any part of the larynx.

An oral cavity with a long antero-posterior diameter requires droppers of greater length than those usually found in the market. These may readily be obtained from any druggist familiar with glass-blowing. Patients are easily taught to use the long droppers, and can themselves make laryngeal applications without difficulty. Weak solutions of creosote are preferable for these applications.

In acute pulmonary tuberculosis, with profuse expectoration, quantities of mucus cling to the larynx and walls of the trachea. In view of the possibility of this being a source of infection to the mucous membrane, may not applications of creosote be a reasonable precautionary measure?

All the patients in the thirty-two cases in this report



had pulmonary and laryngeal tuberculosis, and three pharyngeal, one of the latter being primary and the two others secondary. In the primary pharyngeal case the deposit in the pharynx preceded the implication of the larynx by at least three months, and of the lungs by four months. A full report of this case will appear elsewhere.

One tuberculous ulcer of the nasal sæptum and four of the upper part of the trachea were also observed.

In ten of the thirty-two cases the subjective and objective laryngeal symptoms were acute when they came under my observation, and eight of the patients died within four months from that time. In one case the result is unknown, as the case passed from observation. In the tenth case the tuberculous process seems to have been arrested and the patient for the time being completely restored to health. This case came under my care in March, 1895, with extensive laryngeal thickening and ulceration and considerable pulmonary complication. After a positive diagnosis had been made, a thorough course of creosote treatment was instituted and continued for three months. The ulcerations and thickenings in the larynx disappeared, the temperature dropped to normal, and the patient's weight increased thirty pounds. The pulmonary symptoms also disappeared, and, as far as could be discovered, all the tuberculous process had been arrested. This patient has continued under observation till the present time without any relapse and seemingly in perfect health, although he has been unable to avail himself of favorable hygienic and climatic influences.

In twenty-two cases the history and symptoms pointed to a more or less chronic tuberculous process. Four of them have already been reported in my first paper on this subject. Since that report two of the cases have relapsed, supposedly from the conditions produced by a few weeks'

sojourn at the seaside. In both cases a small, deep ulcer appeared, one being on the vocal cord and the other in the interarytænoid space. Applications of creosote produced healing in both instances after from five to six weeks' treatment.

Of the eighteen remaining patients, four were lost sight of, although much benefited while under treatment. The rest of the group are still under observation and in various stages of progress, the laryngeal appearance of three being as nearly normal as it is possible after so much infiltration and tissue change. They are also without any subjective symptoms, and are much improved in general health.

A great deal seems to depend on the proper selection of cases for treatment, so that the most suitable remedy and measures should be employed in the right way and at the proper time.

From the writer's experience, he believes that cases of tuberculous laryngitis may clinically be divided into two groups, one having more or less acute symptoms and running a short course, while in the other the whole history of the disease is of a prolonged or chronic character. In the acute cases the afternoon temperature is always above  $101^{\circ}$  F., and the pulmonary involvement considerable and progressive. The initial laryngeal deposit usually appears in the interarytænoid space or on the arytænoid cartilages as a superficial pearly gray infiltration of the mucous membrane immediately beneath the epithelium. The infiltration progresses rapidly, and produces a tense, almost translucent appearance of the mucous membrane. In a very short time small disseminated yellow spots appear over the tense surface, resembling follicles plugged with secretion. The engorged follicles soon break through their epithelial covering, pour out a quantity of secretion, and leave a small ulcer. The previous redness and infiltration subside consid-

erably, but the minute points of ulceration rapidly coalesce and produce a large ulcerating surface. The writer has watched a case in which these various stages were traversed in twelve hours.

In the acute form of tuberculous disease laryngeal applications should be carefully made of remedies non-irritating in character; otherwise deposits which are perfectly quiescent may readily become active and ulcerate. From three or four daily observations made in a case under my care for three months, I noticed that about every two weeks some point of laryngeal infiltration gave evidence of renewed activity—increase of temperature, laryngeal secretion, and soreness being the prominent symptoms of this condition, and resulting usually in some new spot of ulceration. Two weeks later the same cycle would be repeated.

It is not difficult to imagine that strong solutions of lactic acid or creosote might readily precipitate and aggravate the recurrence of these attacks. By carefully watching the temperature and condition of the mucous membrane, any period of activity may be anticipated, and this time selected for a submucous injection. At this period injections will frequently arrest a process which would otherwise have progressed to ulceration.

After ulceration has occurred, slightly stimulating and soothing solutions may be used. The weaker creosote solutions fill these indications, but their employment must be carefully watched, and discontinued if they are too stimulating.

In the more protracted forms of tuberculous laryngitis, the hypertrophic infiltrations are either in the form of small localized thickenings and neoplasms of considerable size, or as a general thickening and hypertrophy of the mucosæ, especially of that covering the ventricular bands and arytaenoid cartilages.



In the first group, submucous injections of creosote, persistently used, will produce atrophy of the smaller masses, and even the larger ones may be considerably diminished. The latter, however, are more quickly removed by forceps. The group consisting of general infiltrations are seemingly the result of disseminated tuberculous deposits, producing chronic inflammation, slow in progress, and continuing for months without ulceration. The chronic form of this disease also seems to have occasional periods of activity, when symptoms of a more or less acute character appear; at this period ulceration occasionally takes place. The ulcers are usually small, deep, and localized. The cycles of activity depend greatly on the condition of the pulmonary organs, and are accompanied by similar processes in the lungs.

This form of the chronic affection is specially benefited by submucous injections of creosote, as the latter do not necessitate any loss of tissue, and eventually arrest the tuberculous process in many cases. The injections should be made deep into the tissues, and after the reaction subsides another spot selected, and the injections repeated until the entire infiltrated surface has been covered.

Several months are sometimes necessary to complete this, if the infiltration has been extensive. The injections should be followed by soothing sprays and applications.

If an active period develops in this form of the disease, submucous injections should be postponed, unless it is evident that an ulcer is forming. In the latter case they may sometimes arrest the process.

An ulcer in the chronic cases, treated by local applications of creosote, usually heals in from four to six weeks.

In conclusion, can we determine, from our experience in these cases, the following points:

1. Has creosote any beneficial action on tuberculous laryngitis and pharyngitis?



2. In what class of cases is its action most marked ?

3. Are the results permanent, or merely temporary ?

Regarding the first, there can be no doubt that the action of creosote, internally and topically, is beneficial at some period in many cases of tuberculosis of the upper respiratory tract. In one acute case the changes were remarkable, although, on the whole, the greatest relief and progress were obtained in the chronic cases. Small ulcerations are decidedly affected by creosote.

When the ulceration is extensive and progressing, creosote will occasionally produce cicatrization ; in others, it limits the ulceration and modifies the pain and discomfort. In advanced cases nothing can take the place of cocaine for the relief of pain.

In the writer's opinion, the benefits from creosote are as permanent as from any other form of treatment, or as it is possible for them to be in a disease which is usually secondary to a similar condition in the pulmonary organs.

Of course, in giving injections one can not always be sure that every point of deposit has been reached. Appearances and symptoms may lead us to this favorable conclusion, and still a spot of infection may lie dormant until some renewed activity in the pulmonary organs rekindles it.

Again, although every particle of tuberculous deposit may have been reached, and the larynx left apparently healthy, reinfection may occur so long as there is any disease in the lungs.



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